

Appl. No. 10/648,431
Amdt. Dated March 14, 2005
Reply to Office Action of December 13, 2004

Attorney Docket No. 81784.0283
Customer No.: 26021

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-31. (Cancelled).

32. (Previously Presented): A color liquid crystal display having liquid crystal sealed between first and second substrates opposing one another and each having electrodes disposed on its opposing side, said color liquid crystal display comprising a plurality of pixels, wherein said first substrate comprises:

a plurality of pixel electrodes for driving said liquid crystal and which are spaced apart from one another;

a data line for supplying display data to associated electrodes among said plurality of pixel electrodes, said data line arranged overlapping predetermined electrodes among said plurality of pixel electrodes; and

color filters formed in an interlayer between said data line and said associated electrodes overlapping said data line among said plurality of pixel electrodes, and wherein

orientation dividers for dividing the orientation direction of said liquid crystal are formed on at least one of said first and second substrates in formation regions of the pixels, and

said data line overlaps said orientation dividers within formation regions of the associated pixel electrodes.

33. (Previously Presented): The display defined in claim 32 wherein said liquid crystal has negative anisotropy of dielectric constant.

34. (Previously Presented): The display defined in claim 32 wherein initial orientation of said liquid crystal is controlled to a vertical direction with respect to the plane of the substrates.

35. (Previously Presented): The display defined in claim 34, wherein;
a common electrode is formed on a side of said second substrate facing said plurality of pixel electrodes;
said common electrode includes, as said orientation divider, orientation control windows opened through said common electrode in positions corresponding to each of said plurality of pixel electrodes; and
rubbing-less type vertical orientation films are provided on respective surfaces of said first and second substrates contacting the liquid crystal.

36. (Previously Presented): The display defined in claim 34, wherein
a sloped protrusion for slanting said liquid orientation is provided as said orientation divider in each formation region of said plurality of pixel electrodes on said first substrate; and
rubbing-less type vertical orientation films are provided on respective surfaces of said first and second substrates contacting the liquid crystal.

37. (Previously Presented): The display defined in 32, wherein:
each of said plurality of pixel electrodes is connected to said data line to which the pixel electrode is assigned via an associated switch element; and
said color filter is absent from a contact region between said switch element and the associated electrode among said plurality of pixel electrodes.

38. (Previously Presented): The display defined in claim 32, wherein said data line is formed in a layer closer to said first substrate than the associated

electrodes among said plurality of pixel electrodes, said data line and the associated electrodes being separated by said color filters disposed therebetween.

39. (Previously Presented): The display defined in claim 38, wherein;
switch elements are formed underneath each of said plurality of pixel electrodes;
each of said plurality of pixel electrodes is connected to said data line to which the pixel electrode is assigned via an associated switch element; and
said color filter is absent from a contact region between a switch element and an associated electrode among said plurality of pixel electrodes.

40. (Previously Presented): The display defined in claim 32, wherein an end of at least a portion of said color filter extends outward from an end of the associated electrode among said plurality of pixel electrode by approximately 1 μm .

41. (Previously Presented): The display defined in claim 32, wherein at least a portion of said color filter is formed larger than the associated electrode among said plurality of pixel electrodes.

42. (Previously Presented): The display defined in claim 32, wherein an orientation film is provided at least on a side of said first substrate contacting the liquid crystal; and
an orientation control slope face that slants with respect to plane direction of the substrates is formed as said orientation divider at least on a side of said orientation film contacting the liquid crystal.

43. (Previously Presented): The display defined in claim 42 wherein said orientation film is a vertical orientation film for controlling initial orientation of said liquid crystal to a vertical direction, and said data line is formed in a layer closer to said first substrate than the associated electrodes among said plurality of pixel electrodes, said data line and the associated electrodes being separated by said color filters disposed therebetween.

44-46. (Cancelled).

47. (Currently Amended): The display defined in claim 44 wherein A color liquid crystal display having liquid crystal sealed between first and second substrates opposing one another and each having electrodes disposed on its opposing side, said color liquid crystal display comprising a plurality of pixels, wherein said first substrate comprises:

a plurality of pixel electrodes for driving said liquid crystal and which is spaced apart from one another;

a data line for supplying display data to associated electrodes among said plurality of pixel electrodes, said data line arranged overlapping predetermined electrodes among said plurality of pixel electrodes; and

color filters formed in an interlayer between said data line and said associated electrodes overlapping said data line among said plurality of pixel electrodes, and wherein

a planarizing insulating layer is provided in an interlayer between said color filters and said plurality of pixel electrodes,

orientation dividers for dividing the orientation direction of said liquid crystal are formed on at least one of said first and second substrates in formation regions of the pixels, and

said data line is arranged to overlap said orientation divider within formation regions of the associated pixel electrodes.

48. (Previously Presented): The display defined in claim 47, wherein:
a common electrode is formed on a side of said second substrate facing said plurality of pixel electrodes;

said common electrode includes, as said orientation divider, orientation control windows opened through said common electrode in positions corresponding to each of said plurality of pixel electrodes; and

rubbing-less type vertical orientation films are provided on respective surfaces of said first and second substrates contacting the liquid crystal.

49. (Previously Presented): The display defined in claim 47, wherein
a sloped protrusion for slanting said liquid crystal orientation is provided as said orientation divider in each formation region of said plurality of pixel electrodes on said first substrate; and

rubbing-less type vertical orientation films are provided on respective surfaces of said first and second substrates contacting the liquid crystal.

50. (Previously Presented): The display defined in claim 47, wherein
an orientation film is provided at least on a side of said first substrate contacting the liquid crystal; and

an orientation control slope face that slants with respect to plane direction of the substrates is formed as said orientation divider at least on a side of said orientation film contacting the liquid crystal.

51. (Cancelled).

52. (Currently Amended): ~~The display defined in claim 44 wherein~~
A color liquid crystal display having liquid crystal sealed between first and
second substrates opposing one another and each having electrodes disposed on its
opposing side, said color liquid crystal display comprising a plurality of pixels,
wherein said first substrate comprises:

a plurality of pixel electrodes for driving said liquid crystal and which
is spaced apart from one another;

a data line for supplying display data to associated electrodes among
said plurality of pixel electrodes, said data line arranged overlapping predetermined
electrodes among said plurality of pixel electrodes; and

color filters formed in an interlayer between said data line and said
associated electrodes overlapping said data line among said plurality of pixel
electrodes, and wherein

a planarizing insulating layer is provided in an interlayer between said color
filters and said plurality of pixel electrodes, and

an end of at least a portion of said color filter extends outward from an end of
the associated electrode among said plurality of pixel electrode by approximately
1 μm .

53. (Currently Amended): ~~The display defined in claim 44, wherein~~
A color liquid crystal display having liquid crystal sealed between first and
second substrates opposing one another and each having electrodes disposed on its
opposing side, said color liquid crystal display comprising a plurality of pixels,
wherein said first substrate comprises:

a plurality of pixel electrodes for driving said liquid crystal and which
is spaced apart from one another;

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a data line for supplying display data to associated electrodes among said plurality of pixel electrodes, said data line arranged overlapping predetermined electrodes among said plurality of pixel electrodes; and

color filters formed in an interlayer between said data line and said associated electrodes overlapping said data line among said plurality of pixel electrodes, and wherein

a planarizing insulating layer is provided in an interlayer between said color filters and said plurality of pixel electrodes, and

at least a portion of said color filter is formed larger than the associated electrode among said plurality of pixel electrodes.